

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOX PATENT APPLICATION

The Commissioner of Patents and Trademarks
 Washington, D.C. 20231

Sir:

Transmitted herewith for filing is the patent application
 of: **Ming-Sen WONG et al.**

Title of Invention: **LOW-PROFILE COMPACT DISK CASE**

Enclosed are:

A specification and 6 claims.

Four (4) sheets of formal drawings (Figs. 1-5).

A Combined Declaration and Power of Attorney

A verified statement to establish small entity status
 under 37 CFR § 1.9 and 37 CFR § 1.27.

An Assignment

A Claim to Priority

The filing fee has been calculated as shown below:

FOR:	NO. FILED	NO. EXTRA	SMALL ENTITY RATE FEE	LARGE ENTITY RATE FEE
BASIC FEE			\$345.	\$690.
TOTAL CLAIMS	6 - 20	0	\$ 09.	\$ 18.
INDEP CLAIMS	1 - 3	1	\$ 39.	\$ 78.
0 MULTIPLE DEPENDENT CLAIMS			\$130.	\$260.
TOTAL			\$345.	

For payment of the above-calculated filing fee and assignment fee:

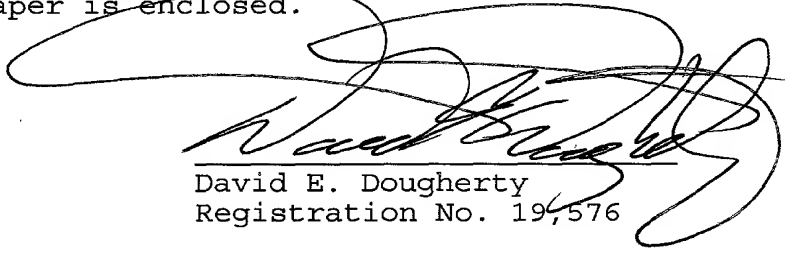
A check in the amount of **\$385.00** is enclosed.

The Commissioner is hereby authorized to charge any additional fees associated with this communication, including patent application filing fees, and processing fees under 37 CFR 1.16 and 37 CFR 1.17 or credit any overpayment to Deposit Account No. **04-1447**. A duplicate copy of this paper is enclosed.

March 17, 2000

Date

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Jc564 U.S. PTO
 09/531154
 03/17/00

Jc662 U.S. PTO
 03/17/00

09531154 031700

Applicant or Patentee: CMC Magnetics Corporation
 Serial or Patent Number: _____
 Filed or Issued: _____
 For: LOW-PROFILE COMPACT DISK CASE

Docket #: 3078/25
 Examiner: _____
 Art Unit: _____

VERIFIED STATEMENT (DECLARATION) BY A NON-INVENTOR SUPPORTING A CLAIM BY ANOTHER FOR SMALL ENTITY STATUS

I hereby declare that I am making this verified statement to support a claim by:

Ming-Sen Wong Representative of CMC Magnetics Corporation

for small entity status for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, with regard to the invention entitled LOW-PROFILE COMPACT DISK CASE

by Ming-Sen Wong and Chen-Cheng Chang

described in:

- ☐ The specification filed herewith.
☐ Application serial number _____, filed _____.
☐ PCT International patent application number _____, filed _____.
☐ Patent number _____, issued _____.

I hereby declare that I would qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying fees under section 41(a) and (b) of Title 35, United States Code, if I had made the above-identified invention.

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed or licensed or am under an obligation under contract or law to assign, grant, convey or license any rights in the invention is listed below:

- ☐ No such person, concern or organization.
☐ Persons, concerns or organizations listed below. Note: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities (37 CFR 1.27).

Full Name: _____

Address: _____

☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization

Full Name: _____

Address: _____

☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization

☐ See attached sheet for additional person(s), concern(s) or organization(s).

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine, or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which the verified statement is directed.

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City, State, Zip, Country

Ming-Sen Wong
 Signature
 February 23, 2000

Date

LOW-PROFILE COMPACT DISK CASE

BACKGROUND OF THE INVENTION

5 The present invention relates to a compact disk (CD) case, and more particularly to a low-profile CD case that has reduced overall height and can be produced with less material, assembling and transport costs while maintaining good packing quality thereof.

10 With the production of digital compact disks that provide large storage volume and precise signals, a variety of storage structures are developed for safely holding and storing such compact disks. An earliest and most common type of CD case mainly includes a bottom seat having a top cover pivotally and openably connected thereto, and a CD deck disposed in a space provided on the bottom seat. The CD deck includes a shallow recess for receiving a compact disk therein. A catch button having a plurality of radially extended flexible catch pawls is centered at the CD deck. 15 A compact disk is positioned in the CD deck and accordingly the CD case by aligning a central hole of the compact disk with the catch button and pressing the disk downward, and removed from the CD deck by depressing a center of the catch button to cause retreated catch pawls and release the compact disk. 20 25

The above-described conventional CD case is a three-piece unit, a production of which would require longer time and higher costs for molds, material and assembling thereof. 30

Moreover, to contain the CD deck, the conventional CD case formed from the top cover and the bottom seat must have an overall height at least about 10mm that is several times of the thickness of a regular compact disk. Such a height of the three-piece CD case largely increases space and cost required for storing, packing and transporting the CD cases and the compact disks stored therein. The three-piece CD case also requires more plastic material to produce it and will therefore cause more environmental problems in disposal of the discarded plastic case.

There are thin paper bags or clear poly bags with one open end being used to contain individual compact disks. Such bags have the advantage of low production and transportation costs due to their small thickness. On the other hand, these bags give consumers the impression that they are used to hold compact disks of inferior quality.

SUMMARY OF THE INVENTION

A primary object of the present invention is to provide a low-profile CD case that has simplified structure to effectively reduce an overall height or thickness of the case without sacrificing the high quality appearance thereof.

To achieve the above and other objects, the present invention provide a CD case including pivotally connected top cover and bottom seat to provide an inner space for receiving a compact disk therein. The bottom seat is

integrally formed on an inner surface with a central holding means and a plurality of protective means. The central holding means is a short hollow cylinder upward projected from the bottom seat and has spaced cuts along its circumferential wall to provide a plurality of flexible catch pawls for holding a compact disk in place. First and second protective means are low-raised ribs for supporting and preventing the compact disk from direct contact with the bottom seat, and the third protective means are raised curved ribs higher than the first and the second ribs and the compact disk for protecting the compact disk from compression by the top cover. No extra CD deck is required for disposing between the top cover and the bottom seat for holding the compact disk and an overall height or thickness of the CD case can therefore be largely reduced from about 10mm to about 5.2mm only. The CD case with reduced overall height occupies less room and requires lower production and transportation costs.

BRIEF DESCRIPTION OF THE DRAWINGS

The structure and the technical means adopted by the present invention to achieve the above and other objects can be best understood by referring to the following detailed description of the preferred embodiments and the accompanying drawings, wherein

Fig. 1 is an assembled perspective of a low-profile compact disk case according to the present invention;

Fig. 2 shows the top cover of the low-profile compact disk case of Fig. 1;

Fig. 3 shows the bottom seat of the low-profile compact disk case of Fig. 1; and

Fig. 4 is an assembled sectional view of the low-profile compact disk of Fig. 1 with a piece of compact disk positioned therein.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please refer to Figs. 1 through 4 at the same time in which a low-profile compact disk (CD) case according to the present invention is shown. The low-profile CD case mainly includes a top cover 1 and a bottom seat 2 that are pivotally connected to each other at one edge thereof to define a small and safe space between them large enough for holding a compact disk 5 therein.

The top cover 1 includes a plane surface 1 defining a front (or free) end, a rear (or pivotal) end, and two lateral sides. Ribs 11 are provided on an inner side of the plane surface 1 near the front and the rear ends at predetermined positions for locating an advertising sheet (not shown) to the inner side of the plane surface 1. Two side walls 12 are separately formed along the two lateral sides of the plane surface 1 to vertically extend downward relative to the plane surface 1 by a predetermined small distance. Semicircular members 13 are preferably symmetrically

provided on the two side walls 12 at suitable positions close to the front and the rear ends of the top cover 1, such that semicircular members 13 at two opposite sides of the top cover 1 project inward toward one another. A portion of the plane surface 1 near the rear end thereof has a slightly narrowed width. A rear wall 14 extends along the narrowed rear portion of the plane surface 1 to give a substantially n-shaped cross section including two short wings 141. The rear wall 14 also vertically extends downward relative to the plane surface 1 by a predetermined small distance. And, there is a pivotal hole 142 provided on the short wings 141 each.

The bottom seat 2 includes a plane surface 2 defining a front (or free) end, a rear (or pivotal) end, and two lateral sides. The bottom seat 2 is provided at rear ends of the two lateral sides with an extended arm 21 each. Each of the extended arms 21 is provided at an inner side thereof with a protrusion 211 corresponding to the pivotal holes 142 on the two wings 141 of the top cover 1, such that the top cover 1 may be pivotally connected at the rear or pivotal end to the bottom seat 2 by separately extending the two protrusions 211 into the two pivotal holes 142. Two walls 22 are provided on an inner side of the plane surface 2 to separately horizontally extend along the front and the rear ends of the bottom seat 2, such that the walls 22 have a substantially n-shaped cross section including two short wing portions 221. The walls 22 and the side walls 12 are so arranged that they together allow the top cover 1 to be pivotally and fitly closed onto the bottom seat 2.

Semicircular dust-proof recesses 222 are symmetrically provided on the two lateral sides of the bottom seat 2 within the wing portions 221 of the two n-shaped walls 22 and corresponding to the semicircular members 13 on the top cover 1. Narrow spaces are left between outer surfaces of the wing portions 221 of the walls 22 and outmost edges of the two lateral sides of the plane surface 2 to provide stepped shoulder portions 23, onto which the side walls 12 of the top cover 1 are rested when the top cover 1 is in its closed position over the bottom seat 2.

A central holding means 3 and a plurality of protective means are integrally formed on the inner side of the plane surface 2 when the bottom seat 2 is produced by, for example, injection molding.

The central holding means 3 is substantially a very short hollow cylinder with cuts spaced along its circumferential wall to provide a plurality of flexible catch pawls 31.

A first protective means is a low-raised circular rib 41 provided on the inner side of the plane surface 2 at properly decided position to encircle the central holding means 3 and be concentric with a central opening of a regular compact disk 5 that is positioned in the CD case. A second protective means includes two, for example, low-raised curved ribs 42 that also define a circle concentric with the central holding means 3 and extend along positions above which an outer periphery of a compact disk 5 will locate. A third protective means includes four, for example, spaced

curved ribs 43 that are closely located along outer periphery of the second protective ribs 42 and have a height larger than that of the first and the second protective ribs 41, 42 and than a thickness of a regular compact disk 5.

5

As shown in Figs. 1 and 4, a low-profile CD case for storing a regular compact disk 5 can be easily provided simply by pivotally connecting the top cover 1 at its rear or pivotal end to the rear or pivotal end of the bottom seat 2 by engaging the pivotal holes 142 with the protrusions 211. The separate CD deck that is otherwise required in the conventional CD case is completely not needed in the CD case provided according to the present invention. The problems, such as extra material required and troublesome assembling procedures, encountered in conventional CD cases can therefore be eliminated. The CD case according to the present invention can be manufactured in a more effective and simple manner to reduce cost needed for assembling the case. Moreover, the CD case of the present invention has a reduced overall height or thickness less than 10mm and close to 5mm. A low-profile CD case according to a preferred embodiment of the present invention is 5.2mm in height and is much lower or thinner than the conventionally structured CD cases. The low-profile CD case is more convenient for consumers to store, and requires largely reduced volume and accordingly freight in transportation of a large quantity of such CD cases and CD's received therein.

To enable a beautiful appearance and to protect the compact

disk 5 inside the low-profile CD case of the present invention from direct sunshine, the bottom seat 2 may be produced with colored material.

5 With the above arrangements, the top cover 1 and the bottom seat 2 may be fitly closed to each other with the low-raised side walls 12 and the rear wall 14 of the top cover 1 resting on the stepped shoulder portions 23 and closely contacting with the two walls 22 of the bottom seat 2 to effectively
10 prevent dust from entering into the closed CD case.

When a regular compact disk 5 is positioned on the bottom seat 2, the a plurality of flexible pawls 31 on the central holding means 3 on the bottom seat 2 upward project from
15 the central opening of the compact disk 5 and elastically hold the compact disk 5 in place.

The first protective means of the low-raised circular rib 41 and the second protective means of the low-raised curved
20 ribs 42 together protect the compact disk 5 from directly contacting with the inner side of the plane surface of the bottom seat 2 and therefore from wearing or damage due to such contact. The third protective means of the high-raised curved ribs 43 protect the compact disk 5 stored in
25 the low-profile CD case from direct contacting with and being compressed by the top cover 1 when the latter is closed onto the bottom seat 2. Therefore, the low-profile CD case of the present invention has exactly the same CD storing function as that would be provided by a conventional thick
30 CD case, and allows pleasant package to enhance the high

quality of the whole product.

The present invention has been described in an illustrative manner, and it is to be understood that the terminology used
5 is intended to be in the nature of description rather than of limitation. Many modifications and variations of the present invention are possible in light of the above teachings. Therefore, it is to be understood that within the scope of the appended claims, the invention may be
10 practiced otherwise than as specifically described.

004403400

What is claimed is:

1. A low-profile compact disk (CD) case, comprising a top cover and a bottom seat that are pivotally connected to each other at pivotal edges thereof to provide an inner space for receiving a compact disk therein; said low-profile CD case being characterized in that said bottom seat is integrally formed on an inner surface with a central holding means and a plurality of protective means when said bottom seat is produced by injection molding, for example, such that said compact disk may be positioned in said low-profile CD case directly on said bottom seat around said central holding means and on said protective means to omit extra CD deck between said top cover and said bottom seat, and accordingly largely reduces an overall height or thickness of said CD case as well as costs for making and transporting said CD case and compact disk stored therein.
2. A low-profile CD case as claimed in claim 1, wherein said central holding means is a short hollow cylinder upward projected from said bottom seat and has spaced cuts along a circumferential wall of said hollow cylinder to provide a plurality of flexible catch pawls, said first protective means includes a low-raised circular rib encircling and being concentric with said central holding means, said second protective means includes at least two low-raised curved ribs defining a circle concentric with said central holding means and extending on positions at where an outer periphery of said compact

disk will locate, and said third protective means includes a plurality of raised curved ribs closely located at and extended along an outer side of said curved ribs of said second protective means; and said ribs of said third protective means having a height slightly higher than that of said first and said second protective means and a thickness of said compact disk.

3. A low-profile CD case as claimed in claim 1, wherein:

said top cover includes a plane surface defining a front (or free) end, a rear (or pivotal) end, and two lateral sides, ribs being provided on an inner side of said plane surface near said front and said rear ends at predetermined positions for locating an advertising sheet to the inner side of said plane surface of said top cover, two side walls being separately formed along said two lateral sides of said top cover to vertically extend downward by a predetermined small distance, semicircular members being preferably symmetrically provided on said two side walls at suitable positions close to said front and said rear ends of said top cover, such that said semicircular members at two opposite sides of said top cover project inward toward one another, a portion of said top cover near said rear end having a slightly narrowed width, a rear wall extending along said narrowed rear portion to give a substantially n-shaped cross section including two short wings, said rear wall also vertically extending downward by a predetermined small distance, and a pivotal hole being

provided on each of said short wings; and

5 said bottom seat includes a plane surface defining a front (or free) end, a rear (or pivotal) end, and two lateral sides, said bottom seat being provided at rear ends of said two lateral sides with an extended arm each, each of said extended arms being provided at an inner side with a protrusion corresponding to said pivotal holes on said two wings of said top cover, such that said
10 top cover may be pivotally connected at said rear or pivotal end to said bottom seat by separately extending said two protrusions into said two pivotal holes, two walls being provided on an inner side of said bottom seat to separately horizontally extend along said front and
15 said rear ends of said bottom seat, such that said walls have a substantially n-shaped cross section including two short wing portions, semicircular dust-proof recesses being symmetrically provided on said two lateral sides of said bottom seat within said wing portions of said two n-shaped walls and corresponding
20 to said semicircular members on said top cover, narrow spaces being left between outer surfaces of said wing portions of said walls and outmost edges of said two lateral sides of said bottom seat to provide stepped
25 shoulder portions, onto which said side walls of said top cover are rested when said top cover is in its closed position over said bottom seat.

4. A low-profile CD case as claimed in claim 3, wherein said
30 CD case formed by pivotally connected said top cover to

ABSTRACT OF THE DISCLOSURE

5 A low-profile compact disk (CD) case includes pivotally
connected top cover and bottom seat to provide an inner
space for receiving a compact disk therein. The bottom seat
is integrally formed on an inner surface with a central
holding means and a plurality of protective means. The
central holding means is a short hollow cylinder upward
projected from the bottom seat and has spaced cuts along
10 its circumferential wall to provide a plurality of flexible
catch pawls for holding a compact disk in place. First and
second protective means are low-raised ribs for supporting
and preventing the compact disk from direct contact with
the bottom seat, and the third protective means are raised
15 curved ribs higher than the first and the second ribs and
the compact disk for protecting the compact disk from
compression by the top cover. No extra CD deck is required
and an overall height or thickness and production costs of
the CD case can therefore be largely reduced.

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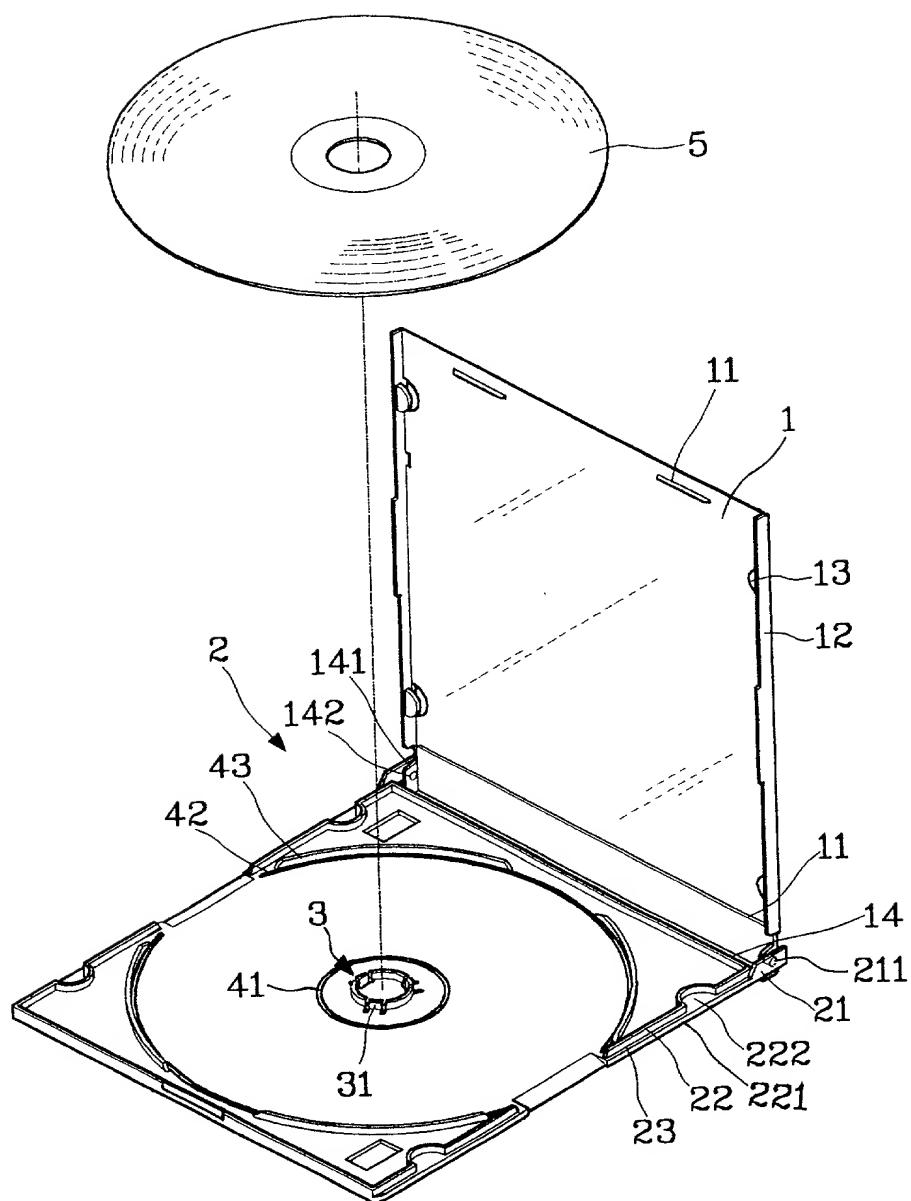


FIG.1

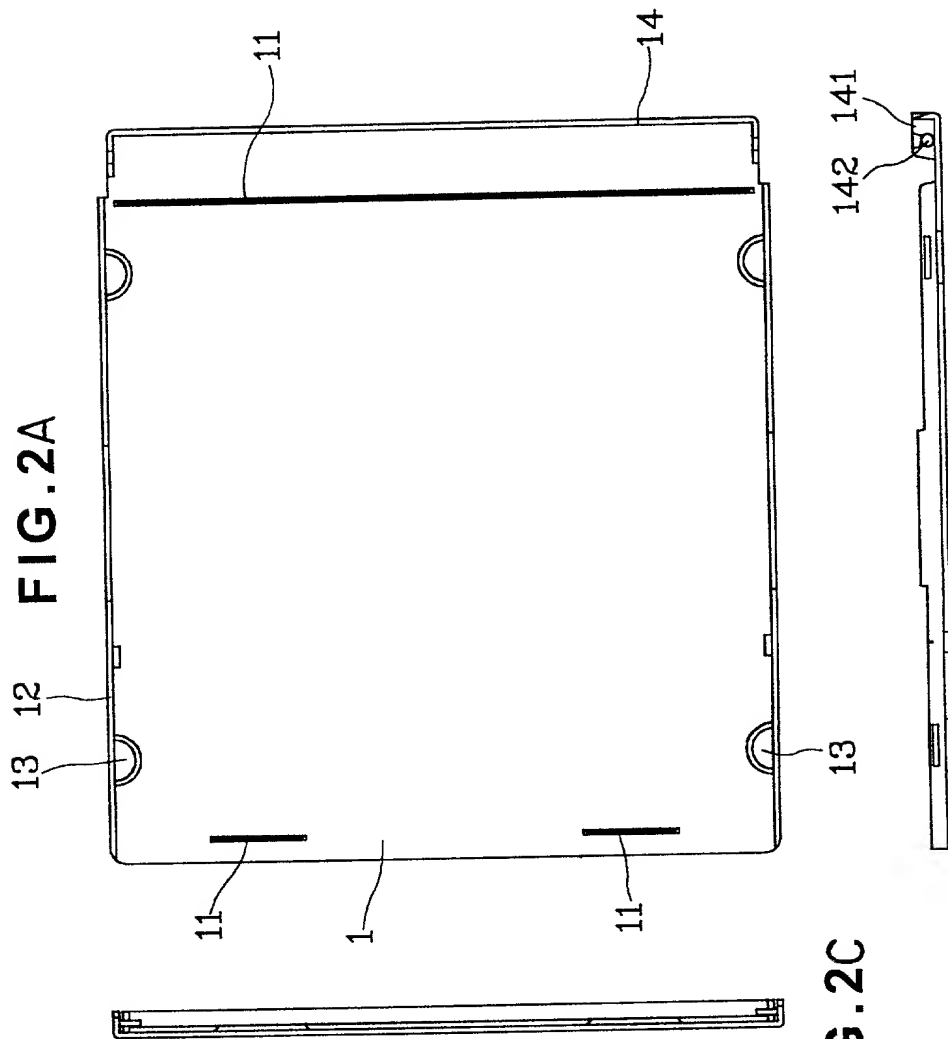


FIG. 2C

FIG. 2B

FIG. 3A

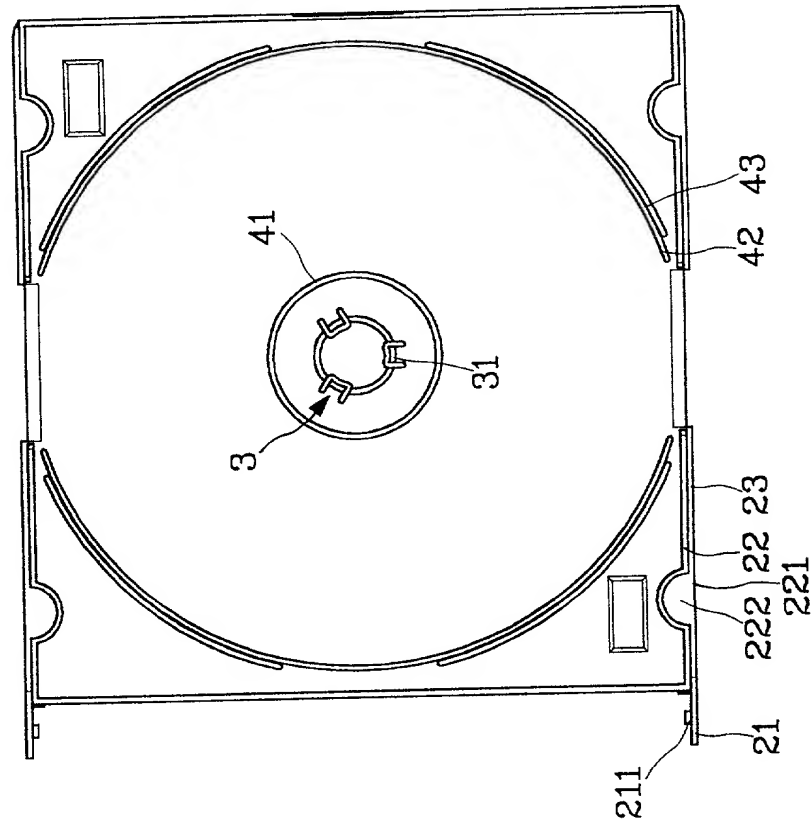


FIG. 3C

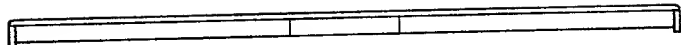


FIG. 3B



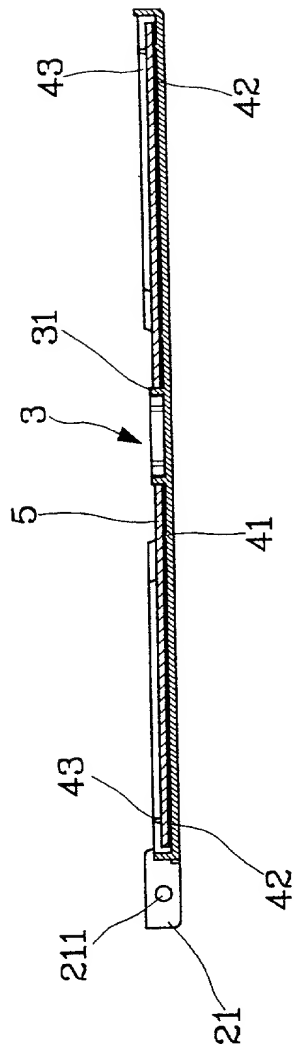


FIG. 4

**COMBINED DECLARATION AND POWER OF ATTORNEY
IN ORIGINAL APPLICATION**

ATTORNEY
DOCKET

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am an original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

the specification of which (check one)

_____ is attached hereto.

_____ was filed on _____ as Application Serial No. _____

and with amendments through _____

(if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims.

I acknowledge the duty to disclose information which may be material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

EARLIEST FOREIGN APPLICATION(S), IF ANY, FILED WITHIN 12 MONTHS PRIOR TO THIS APPLICATION

Country	Application No.	Date of Filing (day, month, yr.)	Date of Issue (day, month, yr.)	Priority Claimed YES NO
Taiwan R.O.C	88211758	July 14, 1999	October 25, 1999	YES

ALL FOREIGN APPLICATIONS, IF ANY, FILED MORE THAN 12 MONTHS PRIOR TO THIS APPLICATION

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorneys to prosecute this application and transact all business in the United States patent and Trademark Office in connection herewith:

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: :
Ming-Sen WONG et al. :
Serial No. Unassigned :
Filed: March 17, 2000 :
For: LOW-PROFILE COMPACT DISK :
CASE :

CHANGE OF ADDRESS

Assistant Commissioner of Patents
Washington, D.C. 20231

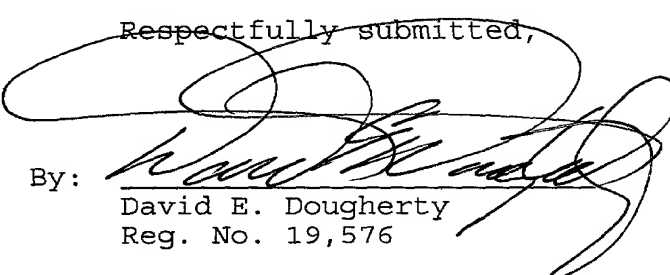
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Respectfully submitted,

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